

A-Charting Students' Academic Performance

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Abstract

Universiti Teknologi Malaysia started offering academic programmes at Bachelor level in 1969. It was then implemented according to the term system. In 1980's the term system was replaced by the semester system, which was quite similar to that implemented in the United States. The UTM semester system requires a set menu of subjects offered in every semester. A student has a minimum- maximum duration of stay and minimum- maximum number of credits to be taken in each semester. The whole idea is to limit the work pressure on a student, and to ensure that he/she has sufficient hours of self-study in order to secure all the credits taken. However, there had been incidents whereby average students with 'strong desires' tried to swallow more than what they could chew. Of course, the end result was very unfavourable. They failed to graduate.

This paper highlights the use of the A-Chart in monitoring students' performance. It has been widely used as a guide by the Faculty of Mechanical Engineering, UTM since 1980's. It assists the academic advisors and management to monitor each individual student's performance at a glance, and to be able to make a forecast as to the possibility of the student graduating. The A-Chart is divided into two significant zones, i.e. safe and unsafe, whether the student will ultimately graduate during the prescribed semester or has to go for the optional extension of time, or will not graduate at all, respectively, unless some other assistance are given. An example is illustrated.

Keywords: Semester system; Academic Performance

1. Introduction

Universiti Teknologi Malaysia is one of the pioneers among the institutions of higher learning in Malaysia to implement the Semester System (as practiced in the United States). However, there is a slight variation in the UTM system as it is custom-made for our local needs, objectives and environment. Now, after over twenty years, this system has matured and is well understood by many, especially those involved with the academic affairs of the students.

In a public university such as UTM where most teaching and learning infrastructures and facilities are said to be sufficient, our students are said to have the academic advantages. Likewise, they are expected to obtain a certain degree of academic excellence, probably exceeding those of their counterparts in other institutions, or even in some private colleges. In educational establishments, the academic excellence is used as a

yardstick to gauge the success of students. This criterion becomes more important to potential employers later, as it is always used as an indication of work performance. It maybe misleading in some ways, but that is rather the closest readily available and more trusted instrument for assessment. In the context of human capital development, academic excellence is also measured on par with the capability of students on interpersonal skills, leadership, and personality traits. However, since personality traits constitute intangible parameters, this paper only concerns the academic performance of students.

In UTM, academic excellence of students is of prime importance as the University is geared and more focused to Teaching and Research. Various measures are planned and implemented at faculty level to ensure that academic excellence is placed as top priority. Aggressive motivational programmes, such as orientations, talks, camps, workshops, discussion sessions, are conducted by and for students to achieve this novel vision. Some

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faculties even approved fund to conduct these motivational programmes.

2. The Academic Performance

The faculties are responsible for their students' performance. Generally, there is a committee that would monitor and look into problems in this area. It also plans strategies for improvement measures. For instance, the Civil Engineering Faculty has, since 1990, conducted activities to assist the weak students to improve their results, and the good students to perform even better. The activities include academic discourses, camps, and workshops, such as Lateral Thinking, Study Techniques, Optimal Learning, Job Orientation, Academic Helplines, etc. The Faculty is playing a proactive role in putting in and monitoring the continual improvement measures for an even better output. All these initiatives are aimed at obtaining students' academic excellence, including the following;

- a. To strive for zero-failure, similar to zero-defect
- b. To increase counselling and training sessions for all academic advisors
- c. To reduce the number of weak students, through a series of motivational activities
- d. To increase the number of good students, through a series of motivational activities
- e. To reduce the number of weak students through the 'change of study status' scheme

3. The Essential Parameters

The A-Chart is not new. It was first used in 1980's by the Faculty of Mechanical Engineering to assist their Academic Advisors to get some rough ideas as to whether his/her student will graduate within the stipulated duration of stay in the University. It is a graphical representation of the academic performance of every student. It entails on the how-to of the precautionary or improvement measures that can be done by students during their course of study.

3.1 Minimum and Maximum Credit Hours

The University imposes a minimum of 12 credits for each semester. The rule applies to all *bonafide* undergraduate. However, most students would register for a nominal of 15-18 credits per semester based on their capabilities. A few students, however, after consulting their academic advisers and approved by the Dean, may be allowed to register up to 19 credits or more.

3.2 Minimum and Maximum Duration of Study

The University implements a 2-semester academic session. It allows a maximum duration of study of $(n + 2)$ sessions for all students, where n is the programme duration and 2 years or 4 normal semesters is the maximum extension time. Students should not go beyond the maximum duration, or else they are considered terminated. Therefore, a student undergoing a 4-year programme will have the allowable maximum study duration of 6 years or sessions.

3.3 Total Credits

The programme conducted by each faculty will declare its total number of credits for graduation. This is usually found in the faculty guide to enable students to schedule their study. Total credits would depend on the curriculum, usually in a range of 125 – 135, for a 4-year or 150 – 165 for a 5-year Engineering degree programme.

3.4 The Academic Status

The academic status of individual student in the University is indicated by the GPA and CPA. Both of these parameters are numerical figures that have maximum scores of 4.0. GPA, or Grade Point Average, defines the 'performance' of the student in one particular semester, whereas the CPA, or Cumulative Point Average, is the cumulative average performance of the student throughout their duration of study thus far.

4. Self-Assessment And Self-Projection

Early detection of an emerging or ongoing academic problem in a student is very essential to academic advisors. It is from here that they can assist their students during the critical times by giving appropriate advice. Students' behavioural changes are not easily detected unless advisors are in constant contact with them, but slacking results can be easily traceable at the end of each semester.

It is believed that the A-Chart is a simple DIY tool to monitor the students' performance, whether by the academic advisors or the students themselves. It is easily explained and interpreted. The A-Chart, as indicated in Figure 1, has two main zones, namely safe and unsafe, that are explained in due course. Generally the current or overall performance of students can be assessed by the total number of credits that they have gained and the number of semesters they have already utilized. Subsequently, a projection on future performance and

precautionary measures can also be taken so as to avoid any 'calculated mishap'. An example of such projection for the Faculty of Civil Engineering programmes students is portrayed in the preceding paragraphs.

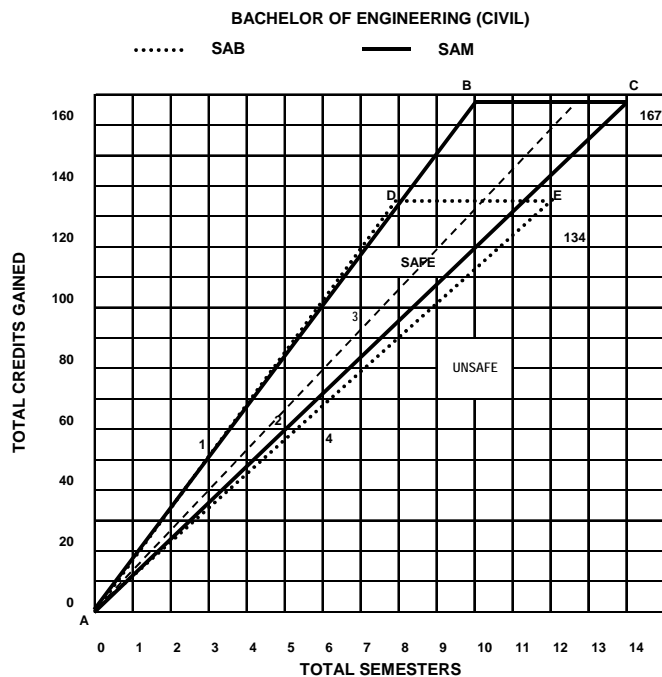


Figure 1. The A-Chart

4.1 The Safe and Unsafe Zones

The safe zone is defined by the area under the triangle ABC or ADE for a 5-year and a 4-year programme, respectively. Points 1, 2 and 3, which are located in the triangle or safe zone, indicate the general results of three students of various semesters with various cumulative credits gained. However, Point 4 is outside the triangle and interpreted to be in the unsafe zone.

In the interpretation, a rough assumption is made, i.e. the individual student is consistently maintaining his/her CGPA as in the current semester and the semesters to come. And if this is so, Students #1, #2 and #3 are expected to be able to graduate within the maximum duration time allowable, while student #4 will never graduate at all. Detailed analyses on all the four cases can be interpreted in the following ways;

Student #1 This student has accumulated 50 credit hours in 3 semesters. He/she is in the Upper bound of the A-Chart. The track displays an excellent student and if the student maintains the current grade throughout he/she should graduate in the minimum time.

Student #2 This student has accumulated 60 credit hours in 5 semesters. He/she is in the Lower bound of the A-Chart.

The student still has the prospect of graduating, however he/she has to work much harder for the coming semesters to avoid falling into the unsafe zone. Any mishap would lead to disaster, as time is not on his/her side. With improved results, he/she could still graduate within the maximum time allocated. However, he/she may need the maximum or four additional (or extension of) semesters to graduate.

Student #3 This student has accumulated 93 credit hours in 7 semesters.

The student should maintain or improve his/her performance if he/she wishes to graduate within the allowable duration. His/her performance is not too bad, but still requires additional semesters. In this case, the performance line can be extended to give the indication of the number of additional semesters required to graduate.

Student #4 This student has accumulated 60 credit hours in 6 semesters.

The performance of this student is too poor. If this phenomenon were to be detected earlier, measures could be taken. An appropriate advice would be for the student to leave, rather than waste his/her time. If he/she insists on staying on, he/she has to work very hard or still faces failure at the end.

5. Conclusions

The A-Chart has been used in UTM since 1980's, initially by the Faculty of Mechanical Engineering, and then by other faculties, to monitor and project their students' performance. It is simple to use and interpret. This chart is useful for the academic advisors to have some first approximation of performance of students under their care. Any adverse signal can be remedied early to avoid further complications. The students may find this chart to be a good self-assessment tool. They would always be alert and conscious of their own academic performance.

Bibliographies

1. Academic Handbook for Full-time Programmes (Bachelor Degree Courses) (2004). [*Buku Panduan Akademik (Ijazah Sarjana Muda)*], Faculty of Civil Engineering.
2. Fatimah Mohd. Noor (2002), *Perancangan Akademik Pengajian*. Kem Motivasi Pelajar KS. Fakulti Kejuruteraan Awam.
3. Fatimah Mohd. Noor, Jamaluddin Mohd. Yatim & Azmahani Abdul Aziz (2004). *Program Peningkatan Prestasi Akademik Pelajar di Fakulti Kejuruteraan Awam*. Conference on Engineering Education. Kuala Lumpur. December